

# 1-5 Angle Relationships

- You measured and classified angles.  
(Lesson 1-4)

- **1** Identify and use special pairs of angles.

- 2** Identify perpendicular lines.

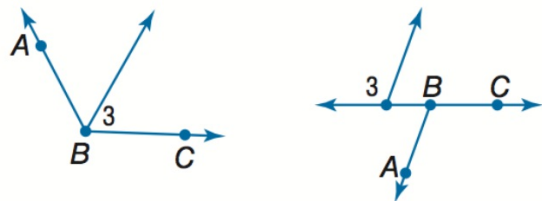
## Adjacent angles

are two angles next to each other that share a side.

Examples  $\angle 1$  and  $\angle 2$  are adjacent angles.

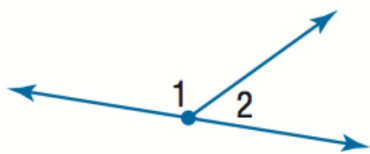


Nonexamples  $\angle 3$  and  $\angle ABC$  are nonadjacent angles

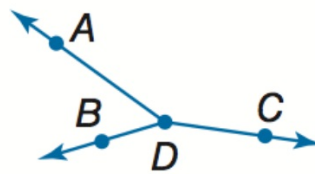


A **Linear Pair** is a pair of adjacent angles that together make a line.

Example  $\angle 1$  and  $\angle 2$



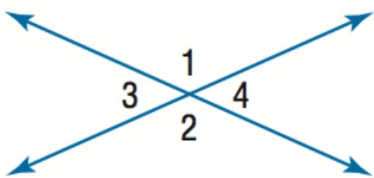
Nonexample  $\angle ADB$  and  $\angle ADC$



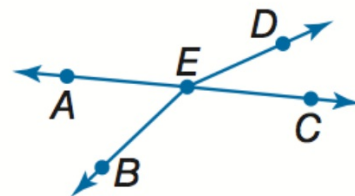
## Vertical angles

are two angles directly across from each other formed by intersecting lines

Examples  $\angle 1$  and  $\angle 2$ ;  $\angle 3$  and  $\angle 4$



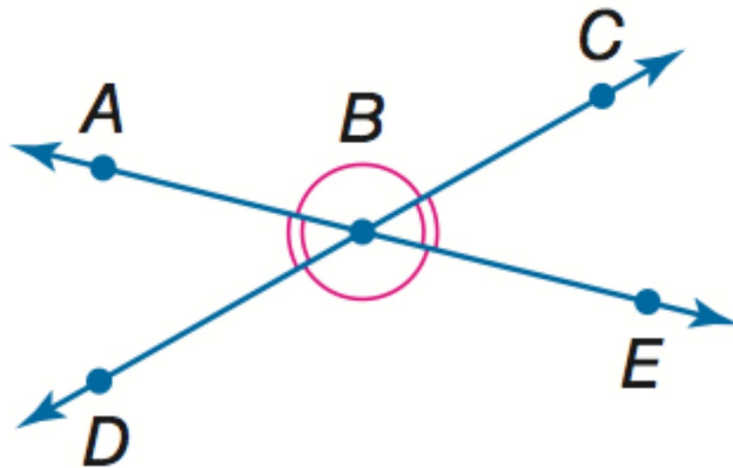
Nonexample  $\angle AEB$  and  $\angle DEC$



Of note: Vertical angles are congruent. Always.

Examples  $\angle ABC \cong \angle DBE$

$\angle ABD \cong \angle CBE$



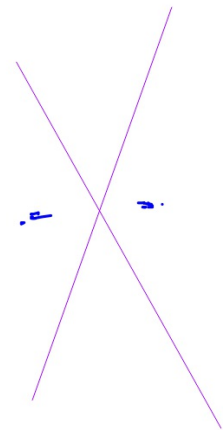
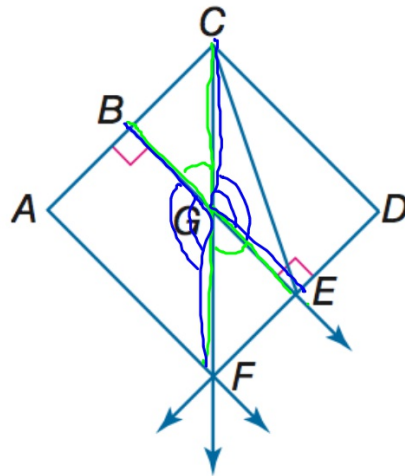
Geometry BELL WORK

Name an angle pair that satisfies each condition.

1. two acute vertical angles
2. two obtuse vertical angles

①  $\angle BGC$   
 $\angle FGE$

②  $\angle CGE$   
 $\angle BGF$



# 1-5 Angle Relationships

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(Lesson 1-4)

- **1** Identify and use special pairs of angles.

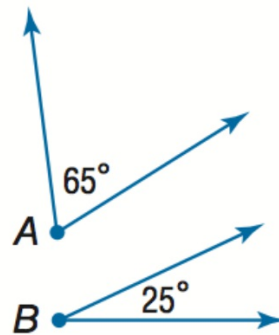
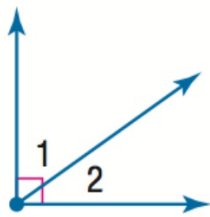
- 2** Identify perpendicular lines.

Pass forward the 1.4 assignment.



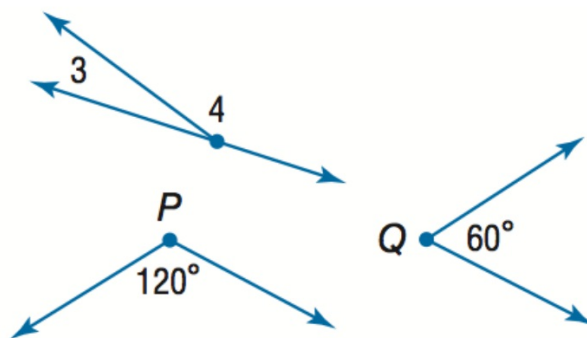
**Complementary angles** are two angles with measures that have a sum of 90

Examples  $\angle 1$  and  $\angle 2$  are complementary.  
 $\angle A$  is complementary to  $\angle B$ .



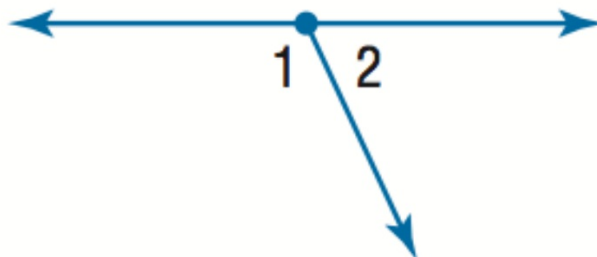
**Supplementary angles** are two angles with measures that have a sum of 180

Examples  $\angle 3$  and  $\angle 4$  are supplementary.  
 $\angle P$  and  $\angle Q$  are supplementary.

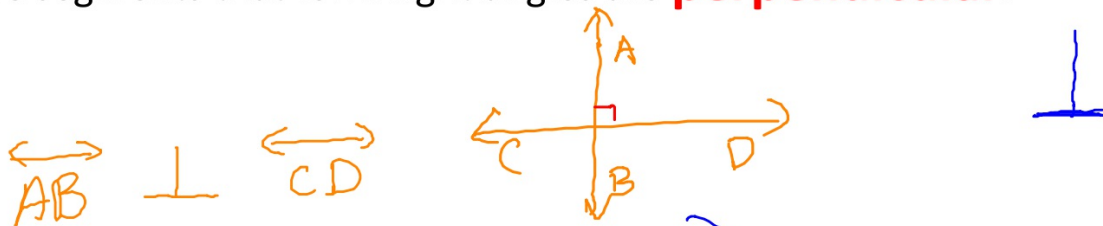


**Of note: The angles in a linear pair are supplementary. Always.**

**Example**  $m\angle 1 + m\angle 2 = 180$



Line segments that form right angles are **perpendicular**.



Perpendicular  
right angle

$90^\circ$

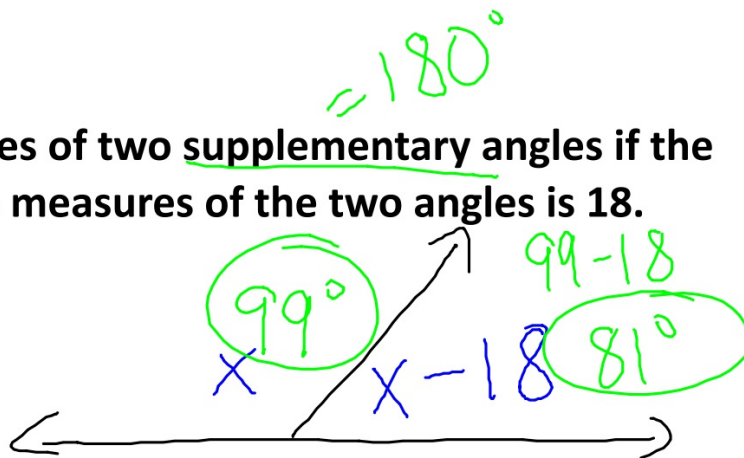
complimentary

} mean the  
same  
thing

Example:

Find the measures of two supplementary angles if the difference in the measures of the two angles is 18.

subtract



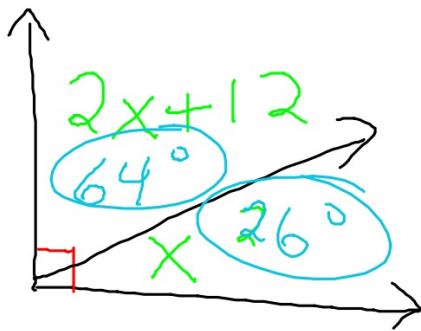
$$x + x - 18 = 180$$

$$\begin{array}{r} 2x - 18 = 180 \\ +18 \quad +18 \\ \hline 2x = 198 \\ \hline x = 99 \end{array}$$

$$\frac{2x = 198}{2} = \frac{198}{2}$$

Example:

Find the measures of two complementary angles if the measure of the larger angle is 12 more than twice the measure of the smaller angle.



$$= 90^\circ$$

$$2x + 12 + x = 90$$

$$3x + 12 = 90$$

$$-12 \quad -12$$

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$$3x = 78$$

$$\frac{3x}{3} = \frac{78}{3}$$

$$x = 26$$

Pull out a piece of paper.  
Put your name, period, and today's date on it.  
Then title it 1.5 and write the assignment on it.

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